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ABSTRACT

A study evaluated the basic skills and employment prospects of current adult Temporary Assistance to Needy Families (TANF) recipients. It performed an analysis for the United States as a whole and separate analyses for nearly all the 75 most populous U.S. counties, plus the District of Columbia. These counties contained 43 percent of the nation's welfare caseload. Analyses were based on a measure of basic skills different from amount of formal schooling; the measure came from the National Adult Literacy Survey. (Individuals at the lowest level of literacy, level 1, were able to locate the expiration date on a driver's license or sign their names; those at level 2 could locate an intersection on a map or understand an appliance warranty.) Results for the United States as a whole showed that typical TANF recipients had extremely low basic skills: 35 percent were at level 1, and 41 percent were at level 2. Because of low basic skills, the vast majority of jobs were not open to TANF mothers. The economy would have had to create six percent more jobs with very low basic skills (VLBS) to fully employ all welfare mothers. Separate analyses by county showed that the impact of welfare reform would vary greatly. In some counties, only 1 percent more jobs with VLBS were needed; in others, the number would have had to increase by more than 20 percent. Five of the twelve counties that would potentially have had the greatest difficulty moving their welfare recipients into jobs were in California. The study concludes that the need for improved basic skills among most current and former welfare recipients is acute. (Appendixes contain 29 references, 3 tables, and additional study information.) (YLB)

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WELFARE, JOBS AND BASIC SKILLS: THE EMPLOYMENT PROSPECTS OF WELFARE RECIPIENTS IN THE MOST POPULOUS U.S. COUNTIES

by

Alec R. Levenson[1], Elaine Reardon[2], and Stefanie R. Schmidt[3]

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[1] Milken Institute, 1250 Fourth Street, Santa Monica, CA 90401. (310) 998-2600, alevenson@milken-inst.org
[2] 817 Seventh Street, Santa Monica, CA 90403
[3] The Urban Institute, 2100 M Street NW, Washington, DC 20037. (202) 261-5795, sschmidt@ui.urban.org

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WELFARE, JOBS AND BASIC SKILLS: THE EMPLOYMENT PROSPECTS OF WELFARE RECIPIENTS IN THE MOST POPULOUS U.S. COUNTIES

Executive Summary

In August 1996, President Clinton fulfilled a campaign pledge to "end welfare as we know it" by signing into law the Personal Responsibility and Work Opportunity Reconciliation Act. This law changed the fundamental nature of the welfare system. Before the law passed, families could receive cash benefits for an indefinite period of time. The 1996 law imposed time limits on the receipt of cash assistance to families with children. In order to underscore the new emphasis on self-sufficiency, the name of the program was changed from Aid to Families with Dependent Children (AFDC) to Temporary Assistance to Needy Families (TANF). With some exceptions, adults must be employed or be in an activity that will soon lead to work after receiving two years of TANF benefits. Federal funds cannot be used to support those who have been on TANF for more than five years in a lifetime.

This article evaluates the basic skills and employment prospects of current adult TANF recipients. We perform an analysis for the U.S. as a whole, as well as separate analyses for nearly all of the 75 most populous U.S. counties plus the District of Columbia. These counties contain 43 percent of the nation's welfare caseload.

We base our analyses on a measure of basic skills different than formal schooling; the measure comes from the National Adult Literacy Survey. Individuals at the lowest level of literacy, level 1, are able to do very simple tasks such as locating the expiration date on a driver's license, totaling a bank deposit slip, or signing their names. They are unable to do level 2 tasks, such as locating an intersection on a street map, understanding an appliance warranty, filling out a government benefits application, or totaling the costs from an order. Individuals at literacy level 2 can perform these tasks, but cannot perform higher-order tasks such as writing a letter explaining an error on a credit card bill, using a bus schedule, or using a calculator to determine a 10 percent discount.

The results for the U.S. as a whole show that typical TANF recipients have extremely low basic skills: 35 percent are at level 1 and 41 percent are at level 2. Because of their low basic skills, the vast majority of jobs are not open to TANF mothers. The nation's economy would need to create 6 percent more jobs with very low basic skills to fully employ all welfare mothers.

Separate analyses by county show that the impact of welfare reform will vary greatly across the country. In some counties only 1 percent more jobs with very low basic skills are needed; in other counties the number of jobs with very low basic skills will have to increase by more than 20 percent. This means that some counties will witness fierce competition for unskilled jobs because of their large TANF caseloads and the particularly low basic skills of TANF recipients.

Five of the twelve counties that will potentially have the greatest difficulty moving their welfare recipients into jobs are in California, including those containing the cities of Los Angeles and San Diego. The seven other counties that will be the hardest hit by welfare reform are those containing Washington, D.C.; Newark, New Jersey; Detroit, Michigan; Baltimore, Maryland; Chicago, Illinois; New York City; and Miami, Florida.

The calculations assumed that each county will exempt 20 percent of its welfare caseload from the work requirements, the maximum percent allowable under the federal law. Further, not all of the jobs with low basic skills would need to be created immediately; TANF recipients will reach their time limits over the course of the next few years.

The need for improved basic skills among most current and former welfare recipients is acute, regardless of whether they are still on the welfare rolls. Even if we optimistically assume that all former TANF recipients could find full-time jobs, both our earlier and ongoing research predict that many former recipients would still earn less than the income required to provide a subsistence living for their families because of their low basic skills.

In counties where the need for additional low-skill jobs is high, adults with low basic skills will have the greatest difficulty finding work. Current welfare recipients may need literacy training in order to find a private sector job in those counties. In counties where the need for additional low-skill jobs is small, adults with low basic skills have the greatest likelihood of being employed. Because welfare reform emphasizes a "work first" philosophy, recipients are encouraged to find a job – any job – no matter how little it pays. State welfare policies place little importance on learning new math and reading skills, so recipients may not get the education and training necessary to move into higher paying jobs that lift their families out of poverty. The challenge will be to help working parents acquire the skills they need to find better paying work while juggling the demands of work and family.

Summary of Findings

Additional Jobs with Lowest Basic Skills Needed to Employ the Welfare Recipients in Largest U.S. Counties
(Lowest basic skills = NALS level 1; ranked by need)

County	State	Largest City in County/Area	Percent Additional Jobs with Lowest Basic Skills Needed	Number of Additional Jobs with Lowest Basic Skills Needed
District of Columbia	DC	Washington, DC	27%	5,700
Sacramento	CA	Sacramento	21%	10,913
Essex	NJ	Newark	19%	7,085
Fresno	CA	Fresno	18%	7,755
Los Angeles	CA	Los Angeles	17%	77,616
San Bernardino	CA	San Bernardino	17%	13,691
	MD	Baltimore City	15%	6,911
Wayne	MI	Detroit	15%	16,914
San Diego	CA	San Diego	12%	14,817
Dade	FL	Miami	12%	12,888
Cook	IL	Chicago	12%	31,727
New York	NY	New York	12%	74,472
Alameda	CA	Fremont	11%	7,007
Cuyahoga	OH	Cleveland	11%	9,227
Riverside	CA	Riverside	10%	7,446
Monroe	NY	Rochester	10%	3,928
Fulton	GA	Atlanta	9%	3,328
Prince Georges	MD	Bowie	9%	2,318
Contra Costa	CA	Concord	8%	3,388
San Francisco	CA	San Francisco	8%	2,858
Erie	NY	Buffalo	8%	4,038
Westchester	NY	Yonkers	8%	2,844
Shelby	TN	Memphis	8%	4,344
Orange	CA	Anaheim	7%	9,378
Santa Clara	CA	San Jose	7%	5,585
Bexar	TX	San Antonio	7%	4,979
Milwaukee	WI	Milwaukee	7%	3,972
Jefferson	KY	Louisville	6%	2,279
Jackson	MO	Kansas City	6%	2,500
Franklin	OH	Columbus	6%	3,649
Ventura	CA	Oxnard	5%	2,007
Hillsborough	FL	Tampa	5%	2,680
Suffolk	MA	Boston	5%	1,465
Hennepin	MN	Minneapolis	5%	3,478
Hamilton	OH	Cincinnati	5%	2,938
King	WA	Seattle	5%	4,265
Pima	AZ	Tucson	4%	1,560
Broward	FL	Fort Lauderdale	4%	2,521
Duval	FL	Jacksonville	4%	1,580
Marion	IN	Indianapolis	4%	1,832
Baltimore	MD	Dundalk	4%	1,259
St. Louis	MO	St Louis	4%	1,998
Dallas	TX	Dallas	4%	4,501
Harris	TX	Houston	4%	6,861
Maricopa	AZ	Phoenix	3%	4,612
Orange	FL	Orlando	3%	1,690
Palm Beach	FL	W. Palm Beach	3%	1,500
Pinellas	FL	St Petersburg	3%	1,377
Honolulu	HI	Honolulu	3%	1,455
Macomb	MI	Warren	3%	1,163
Oakland	MI	Southfield	3%	1,758
Middlesex	NJ	New Brunswick	3%	1,169
Suffolk	NY	Lindenhurst	3%	2,102
Tarrant	TX	Arlington	3%	1,977
Jefferson	AL	Birmingham	2%	730
San Mateo	CA	Daly	2%	848
Essex	MA	Lynn	2%	654

Norfolk	MA	Quincy	2%	803
Worcester	MA	Worcester	2%	865
Montgomery	MD	Rockville	2%	512
Bergen	NJ	Hackensack	2%	693
Nassau	NY	Hempstead	2%	1,098
Salt Lake	UT	Salt Lake City	2%	785
Du Page	IL	Naperville	1%	427
Middlesex	MA	Lowell	1%	804
Fairfax	VA	Fairfax	1%	401

Introduction

In August 1996, President Clinton fulfilled a campaign pledge to "end welfare as we know it" by signing into law the Personal Responsibility and Work Opportunity Reconciliation Act. This law changed the fundamental nature of the welfare system. Before the law passed, families could receive cash benefits for an indefinite period of time. The 1996 law imposed time limits on the receipt of cash assistance to families with children. In order to underscore the new emphasis on self-sufficiency, the name of the program was changed from Aid to Families with Dependent Children (AFDC) to Temporary Assistance to Needy Families (TANF). With some exceptions, adults must be employed or be in an activity that will soon lead to work after receiving two years of TANF benefits. Federal funds cannot be used to support those who have been on TANF for more than five years in a lifetime.

This article evaluates the basic skills and employment prospects of current adult TANF recipients. We perform an analysis for the U.S. as a whole, as well as separate analyses for almost all of the 75 most populous U.S. counties plus the District of Columbia. (Seven large counties from Connecticut, Nevada and Pennsylvania were excluded due to data problems. See Appendix for details.) The remaining large counties contain 43 percent of the nation's welfare caseload.

We base our analyses on a measure of basic skills different than formal schooling; the measure comes from the National Adult Literacy Survey. The results for the U.S. as a whole show that typical TANF recipients have extremely low basic skills. Because of their low basic skills, the vast majority of jobs are not open to TANF mothers. The nation's economy would need to create 6 percent more low-skilled jobs to fully employ all welfare mothers.

Separate analyses by county show that the impact of welfare reform will vary greatly across the country. In some counties only one percent more low-skilled jobs are needed; in other counties the number of low-skilled jobs would have to increase by more than twenty percent. This means that some counties will witness fierce competition for unskilled jobs because of their large TANF caseloads and the particularly low basic skills of TANF recipients.

Five of the twelve counties that will potentially have the greatest difficulty moving their welfare recipients into jobs are in California, including the cities of Los

Angeles and San Diego. The seven other counties that will be the hardest hit by welfare reform are those containing Washington, D.C.; Newark, New Jersey; Detroit, Michigan; Baltimore, Maryland; Chicago, Illinois; New York City; and Miami, Florida.

What is TANF?

TANF is a state-administered program that provides cash to poor families with children. Both state and federal funds support the program. One in 32 U.S. residents received TANF in June 1998. Some TANF funds support children in foster care. The rest of the TANF funds support families with at least one parent present; single mothers head the vast majority (91 percent) of families on TANF. Most TANF families are also beneficiaries of in-kind welfare programs, including Medicaid, Food Stamps, and/or public housing assistance. Before late 1996, the program was called Aid to Families with Dependent Children (AFDC).

What skills do TANF recipients have?

We measure TANF recipients' basic skills using the National Adult Literacy Survey (NALS). The survey, conducted in 1992, tested individuals' ability to apply math and reading skills to tasks common in daily life. The skills included reading comprehension, basic math skills, the ability to fill out forms, and the ability to read charts and graphs. The NALS then categorizes individuals into one of five literacy levels based on their performance on the test.

Individuals at the lowest level of literacy, level 1, are able to do very simple tasks such as locating the expiration date on a driver's license, totaling a bank deposit slip, or signing their names. They are unable to do level 2 tasks, such as locating an intersection on a street map, understanding an appliance warranty, filling out a government benefits application, or totaling the costs from an order. Individuals at literacy level 2 can perform these tasks, but cannot perform higher-order tasks such as writing a letter explaining an error on a credit card bill, using a bus schedule, or using a calculator to determine a 10 percent discount. See Appendix Table A for more details.

For the U.S. as a whole, most TANF recipients are at the lowest two levels of literacy: 35 percent are at level 1 and 41 percent are at level 2. These percentages are much higher than among adult women in general (combining those who do receive TANF with those who do not): 21 percent of adult women are at level 1 literacy, and 28 percent are at level 2. Mothers receiving TANF have fewer years of formal schooling than other women do, but the gap in basic skills between the two groups

cannot be explained merely by their differences in formal education. For example, TANF recipients who were high school dropouts had significantly lower levels of basic skills than other female high school dropouts did: 88 percent of the high school dropouts on TANF had low basic skills, compared with 76 percent of the nonrecipient high school dropouts.

In each of the 66 most populous U.S. counties plus the District of Columbia (see Appendix for how the counties were selected), the majority of the welfare mothers have low basic skills. However, the basic skills of adult TANF recipients vary significantly among counties. In 1997, TANF mothers in Dade County, Florida (which includes Miami) had the lowest level of basic skills; 51 percent were at level 1 and 37 percent were at level 2. In Honolulu County, Hawaii, 18 percent were at level 1 and 44 percent were at level 2.

Despite the low levels of literacy documented by the NALS, it probably overestimates the literacy skills of current TANF recipients. Because of welfare reform, other social policy changes, and a booming labor market, many single mothers have left the welfare rolls and have found employment since the early 1990s. Between 1992 and 1998, the share of the US population that received TANF declined from 5.3 percent to 3.1 percent. The single mothers with the best literacy skills are those who are the most likely to have found jobs. Anecdotal evidence indicates that some employers use standardized tests to screen welfare recipients who apply for jobs, and hire only those recipients with adequate reading and math skills. Current TANF recipients, who have been unable to find work during the present economic recovery, likely have much lower basic skills than those recipients included in the 1992 NALS.

Our results for the U.S. as a whole are consistent with Olson and Pavetti (1996), who analyzed the basic skills of TANF recipients using the Armed Forces Qualifying Test (AFQT), a different measure of skills than the NALS. The military designed the AFQT to predict how well an individual would perform in various military jobs, and has long used the test to screen potential recruits. AFQT scores have proven to be good predictors of success in both military and civilian careers. Unlike the NALS test, the AFQT does not measure an individual's ability to apply math and reading skills to real-life situations. Rather, like many other standardized tests, the AFQT measures the test taker's ability to use math and reading skills in a typical academic context. Yet, despite the differences in the NALS and AFQT measures of basic skills, the results for the two measures, in terms of the percentage of the population with low basic skills, are quite similar.

Many TANF recipients will be unable to find full-time jobs

Because of the low literacy levels of TANF mothers, it is unrealistic to assume that they easily will find full-time, full-year jobs. There is a very large gap between the skills that most TANF recipients have and the skills that most employers require. Using the NALS we find that 76 percent of TANF recipients in the U.S. are at the lowest two levels of literacy. In contrast, almost two-thirds of all employed adults in the U.S. have literacy levels 3 and higher.

Even service sector jobs, reputed to be low skilled, often require more language and math skills than TANF recipients possess. Employers typically require their workers to speak and read English proficiently and to be able to do basic math. Much evidence suggests that these skills are becoming increasingly important in the labor market: Employers screen for basic skills when hiring for almost one-third of all jobs in the United States. Low skills make it hard to find a job and even harder to find one that pays well.

The importance of high literacy skills for U.S. jobs is shown in Appendix Table B. For each occupation category, the table shows the percentage of jobs requiring a particular literacy level. For example, 97.9 percent of all computer scientists have literacy levels of 3 or higher. Many jobs that pay relatively low wages also require relatively high levels of basic skills. Only 40.6 percent of sales-related jobs (e.g., retail/cashiers), 30.5 percent of information clerks (e.g., receptionists), and 20.2 percent of secretaries are at literacy levels 1 or 2.

The 1996 welfare reform law allows the states to exempt up to 20 percent of their welfare caseload from the work requirements. Assuming the states will take full advantage of this exemption, the U.S. economy will need 6 percent more level 1 jobs and 3 percent more level 2 jobs to fully employ all women on TANF. However, because most TANF recipients live in a small number of metropolitan areas, national statistics do not provide an accurate picture of the jobs available to the typical recipient. Some of the most populous counties in the U.S. will be more capable of fully absorbing unskilled TANF recipients into their labor markets than others. The results for all 66 counties, from which the figures in Tables 1, 2 and 3 derived, are reported in Table 4. Appendix Table C lists the largest city within each county.

Table 1 shows the 12 counties that have the highest ratios of TANF mothers at level 1 (level 2) literacy to level 1 (level 2) jobs. A relatively high number in the second

column in Table 1 means that a county would need a relatively large number of level 1 jobs to fully employ all the welfare mothers at level 1 literacy. These and all other figures assume that the states will take full advantage of their ability to exempt 20 percent of the welfare caseload from the work requirements. Because counties have 5 years to move their welfare recipients into employment, the jobs could be created gradually over the next few years.

Of the 66 counties we analyze, Washington, D.C. will face the greatest difficulty meeting federal employment participation requirements for its unskilled TANF families; the economy of the nation's capital will need 27 percent more level 1 jobs and 15 percent more level 2 jobs to fully employ all mothers currently receiving TANF. Of course, D.C. is a somewhat special case given its status as the nation's capital and large federal workforce, most of who do not live in the District. (See Appendix for a discussion of how the results would be affected by considering larger labor market areas for commuter cities like D.C.) But California will also be particularly hard hit by welfare reform. Five of the top twelve counties potentially facing the greatest problems meeting participation requirements are in California (Sacramento, Fresno, San Bernardino, Los Angeles, and San Diego).

Table 1
12 U.S. Counties That Have the Highest Need for Additional Level 1 and Level 2 Jobs (Ranked by Need for Level 1 Jobs)

County	Ratio of Mothers on TANF at Level 1 Literacy to Existing Level 1 Jobs	Ratio of Mothers on TANF at Level 2 Literacy to Existing Level 2 Jobs
Washington, D.C.	27%	15%
Sacramento, CA	21%	14%
Essex, NJ	19%	9%
Fresno, CA	18%	12%
San Bernardino, CA	17%	11%
Los Angeles, CA	17%	8%
Wayne, MI	15%	10%
Baltimore City, MD	15%	9%
Cook, IL	12%	7%
San Diego, CA	12%	6%
New York, NY	12%	5%
Dade, FL	12%	4%

Table 2 shows the 12 counties that will have the least difficulty meeting federally required participation rates for their TANF recipients. These counties also have very

low welfare caseloads. TANF clients who may face the least difficulty finding a job live in three suburban counties: Middlesex County, Massachusetts, a suburb of Boston; Du Page County, Illinois, which is 15 miles from Chicago; and Fairfax County, Virginia, in suburban Washington, DC. Only 1 percent more level 1 and 1 percent more level 2 jobs will need to be created in each of these counties.

Table 2
12 U.S. Counties That Have the Lowest Need for Additional Level 1 and Level 2 Jobs (Ranked by Need for Level 1 Jobs)

County	Ratio of Mothers on TANF at Level 1 Literacy to Existing Level 1 Jobs	Ratio of Mothers on TANF at Level 2 Literacy to Existing Level 1 Jobs
Jefferson, AL	2%	1%
Bergen, NJ	2%	1%
Nassau, NY	2%	1%
Essex, MA	2%	1%
Norfolk, MA	2%	1%
Worcester, MA	2%	1%
Montgomery, MD	2%	1%
San Mateo, CA	2%	1%
Salt Lake, UT	2%	1%
Fairfax, VA	1%	1%
Du Page, IL	1%	1%
Middlesex, MA	1%	0.45%

Table 3 shows the percent more level 1 and level 2 jobs that need to be created in the 10 most populous counties in the United States, some of which also appear in Table 1. Many of these counties will need a substantial number of low skilled jobs to fully employ all mothers receiving TANF. However, three of the ten most populous counties (Harris County, Texas, which contains Houston; Dallas County, Texas; and Maricopa County, Arizona, which contains Phoenix) have relatively few unskilled mothers on TANF to absorb into their labor force.

Table 3
Ratio of Welfare Mothers at Level 1 and Level 2 Literacy
To Level 1 and Level 2 Jobs in 10 Most Populous U.S. Counties
(Ranked by population)

County	Ratio of Welfare Mothers at Level 1 Literacy to Existing Level 1 Jobs	Ratio of Welfare Mothers at Level 2 Literacy to Existing Level 2 Jobs	Percentage of National TANF Adult Recipient Caseload
Los Angeles, CA	17%	8%	6.96%
New York, NY	12%	5%	6.64%
Cook, IL	12%	7%	3.33%
Harris, TX	4%	2%	0.70%
San Diego, CA	12%	6%	1.53%
Orange, CA	7%	3%	0.91%
Maricopa, AZ	3%	2%	0.56%
Wayne, MI	15%	10%	1.89%
Dade, FL	12%	4%	0.96%
Dallas, TX	4%	2%	0.46%

The results for all 66 counties in Table 4 show that, even within the same state, there can be substantial variation in the ability of local labor markets to absorb unskilled TANF recipients. For example, while California has several counties that may experience difficulty in the wake of welfare reform (Sacramento, Fresno, San Bernardino, Los Angeles, San Diego), other counties in California should have relatively little problem moving aid recipients into unskilled jobs (Ventura, Santa Clara, Orange).

Improvements over time?

In constructing our data, we sought the most up-to-date county statistics for both series – welfare recipients and jobs. In some cases, one or both series were not available beyond the middle of 1997 (Florida and Minnesota). Thus, in order to permit a consistent comparison among counties, the month chosen for the analysis in Table 4 was set between June and November 1997 for every county, regardless of whether more recent data was available.

However, nationwide the TANF caseload for single parent families declined by 17 percent between early 1997 and early 1998. The decline in caseloads was accompanied by a rapid increase in employment among single mothers. To explore how this affects our results, Table 5 repeats the analysis using the latest data available for each county. (For Florida and Minnesota, because no later data was available, earlier data was used instead.)

For those counties where we have data for mid-1998, some significant changes are noticeable. For example, of the counties facing the greatest need for additional level 1 jobs in Table 1, one of the twelve had a large improvement:

- Washington, D.C.'s need for additional level 1 jobs fell from 27 percent of the total in June 1997 to 20 percent of the total in June 1998.

Three of the twelve counties had more moderate improvements:

- Essex County, New Jersey improved from 19 percent in June 1997 to 16 percent in July 1998.
- Wayne County, Michigan improved from 15 percent in June 1997 to 12 percent in June 1998.
- San Diego County, California improved from 12 percent in June 1997 to 9 percent in April 1998.

However, the situation in six of the twelve counties improved little or not at all:

- Sacramento County, California improved slightly from 21 percent in June 1997 to 20 percent in April 1998.
- Fresno County, California improved slightly from 18 percent in June 1997 to 17 percent in April 1998.
- San Bernardino County, California improved slightly from 17 percent in June 1997 to 15 percent in April 1998.
- Los Angeles County, California improved slightly from 17 percent in June 1997 to 15 percent in April 1998.
- Cook County, Illinois improved slightly from 12 percent in June 1997 to 10 percent in June 1998.
- Baltimore City, Maryland improved slightly from 15 percent in June 1997 to 14 percent in December 1997.

Unfortunately, two of the top twelve counties do not have data available late enough into 1998 to make the comparisons very meaningful. This applies equally to a number of other counties as well. For example, New York state, including the combined five counties in New York City, showed no improvement between November 1997 and February 1998, but three months is not a long enough time period to judge whether the situation improved. (This was also true for the Dade County, Florida data.) Among the other counties, those with relatively low need for additional

level 1 jobs had only slight improvements. But this is not surprising: it is hard to achieve substantial improvement when the original need was relatively low.

Policy implications for the literacy community

Welfare reform emphasizes a "work first" philosophy: recipients are encouraged to find a job – any job – no matter how little it pays. In counties where the need for additional low-skill jobs is high, such as those listed in Table 1, low-skill adults will have the greatest difficulty finding work. Current welfare recipients may need literacy training in order to find a private sector job in those counties. In counties where the need for additional low-skill jobs is small, such as those listed in Table 2, low-skill adults have the greatest likelihood of being employed. State welfare policies place little importance on learning new math and reading skills, so recipients may not get the training necessary to move into higher paying jobs that lift their families out of poverty. The challenge will be to help working parents acquire the skills they need to find better paying work while juggling the demands of work and family.

The need for improved basic skills among most current and former welfare recipients is acute, regardless of whether they are still on the welfare rolls. Even if we optimistically assume that all former TANF recipients could find full-time jobs, both our earlier study ("The Impact of Welfare Reform on AFDC Recipients in Los Angeles County") and ongoing research (not reported) predict that many former recipients would still earn incomes at or below the poverty line because of their low basic skills.

Table 4: Literacy and Job Statistics for Each County

County	State	Number of TANF Adult Recipients	% of TANF Recipients at Level 1 Literacy	% of TANF Recipients at Level 2 Literacy	Number of Jobs	% of Jobs at Level 1 Literacy	% of Jobs at Level 2 Literacy	(.8) Ratio of TANF Recipients at Level 1 Literacy to Level 1 Jobs	(.8) Ratio of TANF Recipients at Level 2 Literacy to Level 2 Jobs	County Recipients as a % of Total U.S. TANF Recipients	Month
Jefferson	AL	2,637	35%	46%	332,540	10%	23%	2%	1%	0.08%	Oct-97
Pima	AZ	6,847	28%	44%	349,400	11%	22%	4%	3%	0.21%	Oct-97
Maricopa	AZ	18,344	31%	43%	1,358,400	10%	22%	3%	2%	0.56%	Oct-97
San Mateo	CA	3,129	34%	45%	374,900	9%	21%	2%	1%	0.09%	Jun-97
Fresno	CA	27,524	35%	42%	332,100	13%	23%	18%	12%	0.83%	Jun-97
Ventura	CA	7,301	34%	45%	359,300	11%	22%	5%	3%	0.22%	Jun-97
San Francisco	CA	9,819	36%	44%	394,300	9%	21%	8%	4%	0.30%	Jun-97
Contra Costa	CA	12,978	33%	46%	452,100	9%	21%	8%	5%	0.39%	Jun-97
Sacramento	CA	43,919	31%	45%	524,300	10%	22%	21%	14%	1.33%	Jun-97
Riverside	CA	27,279	34%	44%	595,400	12%	24%	10%	7%	0.83%	Jun-97
Alameda	CA	28,673	31%	46%	670,800	9%	21%	11%	7%	0.87%	Jun-97
San Bernardino	CA	49,407	35%	44%	671,100	12%	23%	17%	11%	1.50%	Jun-97
Santa Clara	CA	20,299	34%	42%	908,700	9%	21%	7%	4%	0.62%	Jun-97
Orange	CA	30,185	39%	41%	1,334,600	10%	21%	7%	3%	0.91%	Jun-97
San Diego	CA	50,457	37%	42%	1,227,100	10%	22%	12%	6%	1.53%	Jun-97
Los Angeles	CA	229,484	42%	40%	4,149,200	11%	23%	17%	8%	6.96%	Jun-97
Duval	FL	5,661	35%	47%	414,749	10%	23%	4%	2%	0.17%	Jun-97
Orange	FL	5,370	39%	43%	541,803	11%	23%	3%	1%	0.16%	Jun-97
Hillsborough	FL	8,464	40%	44%	525,846	11%	22%	5%	3%	0.26%	Jun-97
Pinellas	FL	4,774	36%	46%	393,083	10%	22%	3%	2%	0.14%	Jun-97
Palm Beach	FL	4,553	41%	44%	427,513	11%	22%	3%	2%	0.14%	Jun-97
Broward	FL	7,875	40%	45%	607,589	10%	22%	4%	2%	0.24%	Jun-97
Dade	FL	31,836	51%	37%	941,152	11%	23%	12%	4%	0.96%	Jun-97
Fulton	GA	12,035	35%	47%	377,552	10%	21%	9%	6%	0.36%	Jun-97
Honolulu	HI	10,081	18%	44%	403,250	10%	22%	3%	4%	0.31%	Oct-97
Du Page	IL	1,852	29%	44%	497,150	8%	20%	1%	1%	0.06%	Jun-97
Cook	IL	109,865	36%	45%	2,519,652	10%	22%	12%	7%	3.33%	Jun-97
Marion	IN	5,884	39%	45%	447,640	11%	22%	4%	2%	0.18%	Jun-97
Jefferson	KY	7,611	37%	45%	364,010	11%	23%	6%	3%	0.23%	Oct-97
Norfolk	MA	2,478	41%	42%	352,702	10%	22%	2%	1%	0.08%	Jun-97
Suffolk	MA	4,377	42%	42%	330,126	8%	20%	5%	2%	0.13%	Jun-97
Essex	MA	2,590	32%	47%	349,338	10%	22%	2%	1%	0.08%	Jun-97
Worcester	MA	2,628	41%	41%	356,935	10%	22%	2%	1%	0.08%	Jun-97
Middlesex	MA	2,387	42%	41%	790,929	11%	22%	1%	<1%	0.07%	Jun-97

Table 4: Literacy and Job Statistics for Each County (continued)

County	State	Number of TANF Adult Recipients	% of TANF Recipients at Level 1 Literacy	% of TANF Recipients at Level 2 Literacy	Number of Jobs	% of Jobs at Level 1 Literacy	% of Jobs at Level 2 Literacy	(.8) Ratio of TANF Recipients at Level 1 Literacy to Level 1 Jobs	(.8) Ratio of TANF Recipients at Level 2 Literacy to Level 2 Jobs	County Recipients as a % of Total U.S. TANF Recipients	Month
Baltimore	MD	4,129	38%	45%	344,666	9%	21%	4%	2%	0.13%	Jun-97
Prince Georges	MD	8,030	36%	45%	292,469	9%	21%	9%	5%	0.24%	Jun-97
Baltimore City	MD	23,262	37%	46%	384,624	12%	24%	15%	9%	0.71%	Jun-97
Montgomery	MD	2,026	32%	44%	405,635	7%	18%	2%	1%	0.06%	Jun-97
Macomb	MI	4,019	36%	46%	417,800	11%	23%	3%	2%	0.12%	Jun-97
Oakland	MI	6,938	32%	47%	646,625	9%	21%	3%	2%	0.21%	Jun-97
Wayne	MI	62,492	34%	46%	924,175	12%	24%	15%	10%	1.89%	Jun-97
Hennepin	MN	14,671	30%	47%	831,253	9%	21%	5%	3%	0.44%	Jun-97
Jackson	MO	8,325	38%	46%	354,131	11%	23%	6%	4%	0.25%	Oct-97
St. Louis	MO	6,900	36%	46%	552,042	10%	22%	4%	2%	0.21%	Oct-97
Middlesex	NJ	3,573	41%	42%	392,800	9%	21%	3%	1%	0.11%	Jun-97
Essex	NJ	21,329	42%	42%	353,800	11%	22%	19%	9%	0.65%	Jun-97
Bergen	NJ	2,175	40%	43%	429,800	8%	20%	2%	1%	0.07%	Jun-97
Monroe	NY	12,881	38%	44%	373,600	11%	22%	10%	6%	0.39%	Nov-97
Westchester	NY	9,007	39%	41%	431,100	8%	20%	8%	3%	0.27%	Nov-97
Erie	NY	15,027	34%	46%	446,700	11%	23%	8%	5%	0.46%	Nov-97
Nassau	NY	4,036	34%	47%	671,400	8%	20%	2%	1%	0.12%	Nov-97
Suffolk	NY	6,773	39%	44%	681,700	10%	22%	3%	2%	0.21%	Nov-97
New York	NY	219,038	42%	39%	6,133,500	10%	22%	12%	5%	6.64%	Nov-97
Hamilton	OH	10,108	36%	46%	557,229	10%	22%	5%	3%	0.31%	Jun-97
Franklin	OH	12,658	36%	45%	641,157	10%	21%	6%	3%	0.38%	Jun-97
Cuyahoga	OH	31,786	36%	46%	786,055	10%	22%	11%	7%	0.96%	Jun-97
Shelby	TN	15,571	35%	47%	523,300	11%	23%	8%	5%	0.47%	Oct-97
Tarrant	TX	6,928	36%	45%	747,172	10%	22%	3%	1%	0.21%	Jun-97
Bexar	TX	14,294	44%	37%	664,307	11%	23%	7%	3%	0.43%	Jun-97
Dallas	TX	15,211	37%	45%	1,207,687	10%	22%	4%	2%	0.46%	Jun-97
Harris	TX	23,004	37%	45%	1,736,037	10%	22%	4%	2%	0.70%	Jun-97
Salt Lake	UT	3,292	30%	48%	463,500	10%	22%	2%	1%	0.10%	Oct-97
Fairfax	VA	1,451	35%	45%	459,928	7%	18%	1%	1%	0.04%	Jun-97
King	WA	18,193	29%	47%	996,100	9%	21%	5%	3%	0.55%	Sep-97
Milwaukee	WI	14,502	34%	46%	472,629	11%	23%	7%	5%	0.44%	Oct-97
Washington	DC	18,859	38%	47%	236,600	9%	20%	27%	15%	0.57%	Jun-97

Table 5: Changes Over Time

County	State	Number of TANF Adult Recipients	Month	(.8) Ratio of TANF Recipients at Level 1 Literacy to Level 1 Jobs	(.8) Ratio of TANF Recipients at Level 2 Literacy to Level 2 Jobs	Number of TANF Adult Recipients	Month	(.8) Ratio of TANF Recipients at Level 1 Literacy to Level 1 Jobs	(.8) Ratio of TANF Recipients at Level 2 Literacy to Level 2 Jobs
Jefferson	AL	2,637	Oct-97	2%	1%	2,093	Jun-98	2%	1%
Pima	AZ	6,847	Oct-97	4%	3%	5,017	Jun-98	3%	2%
Maricopa	AZ	18,344	Oct-97	3%	2%	11,302	Jun-98	2%	1%
San Mateo	CA	3,129	Jun-97	2%	1%	2,137	Apr-98	2%	1%
Fresno	CA	27,524	Jun-97	18%	12%	25,285	Apr-98	17%	11%
Ventura	CA	7,301	Jun-97	5%	3%	6,244	Apr-98	4%	3%
San Francisco	CA	9,819	Jun-97	8%	4%	8,408	Apr-98	7%	4%
Contra Costa	CA	12,978	Jun-97	8%	5%	11,829	Apr-98	8%	5%
Sacramento	CA	43,919	Jun-97	21%	14%	41,180	Apr-98	20%	13%
Riverside	CA	27,279	Jun-97	10%	7%	22,455	Apr-98	8%	5%
Alameda	CA	28,673	Jun-97	11%	7%	25,868	Apr-98	10%	7%
San Bernardino	CA	49,407	Jun-97	17%	11%	42,517	Apr-98	15%	9%
Santa Clara	CA	20,299	Jun-97	7%	4%	15,159	Apr-98	5%	3%
Orange	CA	30,185	Jun-97	7%	3%	23,469	Apr-98	5%	3%
San Diego	CA	50,457	Jun-97	12%	6%	40,668	Apr-98	9%	5%
Los Angeles	CA	229,484	Jun-97	17%	8%	204,534	Apr-98	15%	7%
Duval	FL	6,888	Mar-97	5%	3%	5,661	Jun-97	4%	2%
Orange	FL	6,193	Mar-97	3%	2%	5,370	Jun-97	3%	1%
Hillsborough	FL	9,587	Mar-97	5%	3%	8,464	Jun-97	5%	3%
Pinellas	FL	5,625	Mar-97	4%	2%	4,774	Jun-97	3%	2%
Palm Beach	FL	5,227	Mar-97	4%	2%	4,553	Jun-97	3%	2%
Broward	FL	8,818	Mar-97	4%	2%	7,875	Jun-97	4%	2%
Dade	FL	32,036	Mar-97	12%	4%	31,836	Jun-97	12%	4%
Fulton	GA	12,035	Jun-97	9%	6%	9,083	Jun-98	7%	4%
Honolulu	HI	10,081	Oct-97	3%	4%	9,084	Jul-98	3%	3%
Du Page	IL	1,852	Jun-97	1%	1%	1,411	Jun-98	1%	1%
Cook	IL	109,865	Jun-97	12%	7%	93,947	Jun-98	10%	6%
Marion	IN	5,884	Jun-97	4%	2%	4,095	Jun-98	3%	1%
Jefferson	KY	7,611	Oct-97	6%	3%	6,808	May-98	5%	3%
Norfolk	MA	2,478	Jun-97	2%	1%	2,515	Jul-98	2%	1%
Suffolk	MA	4,377	Jun-97	5%	2%	3,514	Jul-98	4%	2%
Essex	MA	2,590	Jun-97	2%	1%	2,086	Jul-98	2%	1%
Worcester	MA	2,628	Jun-97	2%	1%	2,177	Jul-98	2%	1%

Table 5: Changes Over Time (continued)

County	State	Number of TANF Adult Recipients	Month	(.8) Ratio of TANF Recipients at Level 1 Literacy to Level 1 Jobs	(.8) Ratio of TANF Recipients at Level 2 Literacy to Level 2 Jobs	Number of TANF Adult Recipients	Month	(.8) Ratio of TANF Recipients at Level 1 Literacy to Level 1 Jobs	(.8) Ratio of TANF Recipients at Level 2 Literacy to Level 2 Jobs
Middlesex	MA	2,387	Jun-97	1%	0%	1,810	Jul-98	1%	0%
Baltimore	MD	4,129	Jun-97	4%	2%	3,629	Dec-97	3%	2%
Prince Georges	MD	8,030	Jun-97	9%	5%	6,717	Dec-97	7%	4%
Baltimore City	MD	23,262	Jun-97	15%	9%	22,349	Dec-97	14%	9%
Montgomery	MD	2,026	Jun-97	2%	1%	1,763	Dec-97	2%	1%
Macomb	MI	4,019	Jun-97	3%	2%	2,756	Jun-98	2%	1%
Oakland	MI	6,938	Jun-97	3%	2%	4,875	Jun-98	2%	1%
Wayne	MI	62,492	Jun-97	15%	10%	48,758	Jun-98	12%	8%
Hennepin	MN	14,671	Jun-97	5%	3%	14,128	Sep-97	5%	3%
Jackson	MO	8,325	Oct-97	6%	4%	6,153	Jun-98	5%	3%
St. Louis	MO	6,900	Oct-97	4%	2%	5,728	Jun-98	3%	2%
Middlesex	NJ	3,573	Jun-97	3%	1%	2,079	Jul-98	2%	1%
Essex	NJ	21,329	Jun-97	19%	9%	18,463	Jul-98	16%	7%
Bergen	NJ	2,175	Jun-97	2%	1%	1,364	Jul-98	1%	1%
Monroe	NY	12,881	Nov-97	10%	6%	12,799	Feb-98	10%	6%
Westchester	NY	9,007	Nov-97	8%	3%	8,919	Feb-98	8%	3%
Erie	NY	15,027	Nov-97	8%	5%	15,034	Feb-98	8%	5%
Nassau	NY	4,036	Nov-97	2%	1%	3,909	Feb-98	2%	1%
Suffolk	NY	6,773	Nov-97	3%	2%	6,627	Feb-98	3%	2%
New York	NY	219,038	Nov-97	12%	5%	210,168	Feb-98	12%	5%
Hamilton	OH	10,108	Jun-97	5%	3%	7,118	Mar-98	4%	2%
Franklin	OH	12,658	Jun-97	6%	3%	10,308	Mar-98	5%	3%
Cuyahoga	OH	31,786	Jun-97	11%	7%	27,080	Mar-98	10%	6%
Shelby	TN	15,571	Oct-97	8%	5%	14,735	May-98	7%	5%
Tarrant	TX	6,928	Jun-97	3%	1%	2,724	Jul-98	1%	1%
Bexar	TX	14,294	Jun-97	7%	3%	10,674	Jul-98	5%	2%
Dallas	TX	15,211	Jun-97	4%	2%	10,118	Jul-98	2%	1%
Harris	TX	23,004	Jun-97	4%	2%	14,106	Jul-98	2%	1%
Salt Lake	UT	3,292	Oct-97	2%	1%	3,191	Jul-98	1%	1%
Fairfax	VA	1,451	Jun-97	1%	1%	1,088	Jun-98	1%	0%
King	WA	18,193	Sep-97	5%	3%	15,524	May-98	4%	3%
Milwaukee	WI	14,502	Oct-97	7%	5%	13,434	Jun-98	7%	4%
Washington	DC	18,859	Jun-97	27%	15%	15,046	Jul-98	20%	11%

Appendix

Limitations of this study

The estimates of the percentage of additional low-skilled jobs needed to fully employ all TANF mothers are based on two representative samples of the population. Therefore, the estimates are not created with absolute precision; the estimate of the percentage of additional low-skilled jobs represents the middle of a range of probable values. The actual percentage could be a few points lower or higher than our estimate. Therefore, some differences between counties in the percentage of additional low-skill jobs needed are not statistically meaningful.

For example, Table 1 shows that Essex County, New Jersey will need 19 percent more level 1 jobs, and Fresno County, California will need 18 percent more level 1 jobs. That difference is not statistically meaningful; it is fairly likely that Fresno County could actually need a slightly higher percentage of additional jobs than Essex County. However, we do have more confidence that Essex County needs a higher percentage of additional low-skill jobs than Cook County, Illinois, because the difference between the Essex County and Cook County is much larger than the difference between Essex County and Fresno County (Cook County would need 12 percent additional level 1 jobs).

We use counties as a close approximation to local labor markets because TANF caseload data are available only at the county level; county governments administer the program. An alternative labor market definition is Metropolitan Statistical Areas (MSAs), which are typically agglomerations of several counties, but can overlap county boundaries. A shortcoming of using a county, rather than an MSA, as a labor market definition is that many workers commute to jobs within their MSA but in a different county. But for poor single mothers, the county may be a more appropriate definition of a labor market. More than one-third (36 percent) of low-income, single parent households do not have a car; and the percentage is likely much higher among welfare recipients. Because of the dispersed urban structure of most MSAs, public transportation often does not transport people from one county to another; when such a trip is possible it can take more than an hour.

The largest counties

Of the 75 largest counties in the United States, the three from Pennsylvania (Montgomery, Philadelphia, Allegheny) were excluded because comparable monthly data on employment and the TANF caseload were not available. The three from Connecticut (Fairfield, Hartford, New Haven) and one from Nevada (Clark) were excluded because labor market data were not available by county. For purposes of analyzing a complete local labor market, we combined the counties of New York, Kings, Queens, Bronx and Richmond, which cover the five boroughs of New York City (Manhattan, the Bronx, Brooklyn,

Queens, Staten Island), four of which are in the top 75 largest counties. Adding the District of Columbia yields a total number of 66 largest counties (including D.C.) that we analyze. Note that both the District of Columbia and Baltimore City are municipalities not contained within a county.

Our previous report ("The Impact of Welfare Reform on AFDC Recipients in Los Angeles County") reached the same basic conclusions for Los Angeles County, but the actual numbers reported there differ from those reported here for the following reasons: (a) this report uses data for 1997 and 1998 where the earlier report used 1996 data, and (b) the earlier report did not account for the 20 percent caseload exemption.

As noted above, the decision to analyze counties as opposed to local labor market areas such as MSAs has a disproportionate effect on the results for some of the "commuter cities" included as separate areas in the analysis, e.g. Washington, DC. If these cities were combined with the surrounding suburbs, e.g. Fairfax County, VA, which typically face more favorable ratios of low-skill welfare recipients to low-skill jobs, the overall picture for the combined labor market area would look better. However, we did not do this because welfare statistics are reported at the county level and the overlap of counties and MSAs is rarely uniform. This makes the construction of accurate MSA-level welfare statistics quite difficult. As noted above, for poor single mothers without an automobile, the county may be a more appropriate definition of a labor market.

Literacy estimates

We estimate the literacy level of TANF recipients in the 75 most populous counties and the District of Columbia using data from the 1992 National Adult Literacy Survey (NALS) and the Public Use Microdata Sample of 1990 U.S. Census of Population and Housing. The federal government conducted the NALS to document the literacy levels of the adult population of the United States. The survey was administered to a representative sample of 26,091 adults.

The survey included two sections. The first section – a background questionnaire – gathered demographic information, employment information, and information about the receipt of public benefits. The second part of the NALS survey was a short test designed to measure literacy. Only individuals who could read English took the literacy test. Each individual received a score on the NALS from 1 to 5, 1 being the lowest level of literacy, 5 being the highest. Appendix Table A describes the interpretation of the lowest two literacy levels. Individuals received an overall score, but also received a subscore in three areas: prose (reading), document (ability to read charts and graphs), and mathematics (the ability to apply math to a real world context).

Our methodology is as follows. We cannot directly calculate the average literacy level of TANF recipients in a county because the NALS lacks sufficiently

detailed information on the geographic area in which a person lives, and because the NALS has a relatively small sample size. Instead, we predict literacy for TANF recipients in each county based on their demographic characteristics. Using the NALS, we estimate an ordered probit model for the entire United States that predicts literacy levels of TANF recipients based on their demographic characteristics. The regression coefficients are reported in Levenson, Reardon and Schmidt (1998). Then we predict literacy levels for all welfare recipients in each county in the 1990 Census using the estimates from the ordered probit model.

We cannot directly observe in either the Census or NALS whether a person was on TANF. (When the Census and NALS surveys were conducted, the program was called AFDC, not TANF.) The surveys ask more general questions about all forms of public assistance. For the Census, we assume unmarried women with children who are receiving public assistance are on TANF. For the NALS, we assume unmarried women in households with two or more people are on TANF if someone in the house receives public assistance and the woman does not report a disability.

We limit TANF-eligible status to able-bodied people in order to exclude people who could turn to SSI when their TANF benefits are cut off. To do this, we exclude anyone in the Census who reports a work-preventing disability. We exclude from the NALS sample anyone who lives in a household where someone receives SSI and who reports a disability of any sort. The latter account for a very small fraction of TANF-eligible people in the NALS. Sensitivity analysis showed that including them in the calculations makes no difference for our conclusions.

The number of low-skilled jobs

We cannot directly calculate the skill levels of jobs in each county because the NALS lacks sufficiently detailed information on the geographic area in which a person lives, and because the NALS has a relatively small sample size. Using the NALS, we estimate the share of U.S. workers in each occupation that are at level 1 and level 2 literacy. We assume the percentage of workers in each occupation who are at level 1 or level 2 literacy is the same for each county as for the U.S. as a whole. We then multiply the level 1 and 2 literacy occupation percentages from the NALS with counts of the number of jobs in each county-occupation group from the 1990 Census. This yields the number of jobs in each occupation that are at level 1 and at level 2 literacy. This procedure implicitly assumes that the occupational distribution within each county stayed the same between 1989 and 1996. We performed these calculations for both 2-digit and 3-digit occupation categories and found virtually identical results.

We calculate the total number of literacy level 1 and level 2 jobs in each county (across all occupations) as follows. We calculate the share of each county's workers who are at literacy levels 1 and 2 using the same technique as

above for the within-occupation calculations. We then take the share of all the county's workers at literacy levels 1 and 2 and multiply that number by the size of the county's labor force for the relevant month that coincides with the most recent reporting period for the TANF adult caseload.

Low-skilled TANF recipients as a share of low-skilled jobs

We used a variety of data sources to predict how many level 1 and level 2 jobs each county's labor market would need to create to employ all low-skilled TANF recipients. First, using the methodology explained above, we estimated the number of TANF recipients in each county who are at level 1 and level 2 literacy. We multiplied the percent of TANF recipients at level 1 and level 2 literacy by the total number of TANF adult recipients in each county.

For example, we estimated that 42 percent of Los Angeles County's TANF adult recipients were at level 1 literacy, and 40 percent were at level 2 literacy. In June 1997 a total of 229,484 adults headed TANF families in Los Angeles County. Therefore, we estimate that 97,021 (229,484 x .42) TANF recipients are at level 1 literacy, and 90,948 (229,484 x .42) recipients are at level 2 literacy.

Using the methodology explained above, we estimated the number of level 1 and level 2 workers in each county. To estimate how much the level 1 labor market would have to grow to employ all level 1 TANF recipients, we took 80 percent of the ratio of the number of TANF recipients at level 1 literacy to the number of level 1 jobs. We did the same calculation for level 2 jobs. Again taking the Los Angeles County example, we estimated 11 percent of the jobs are at literacy level 1 and 23 percent are at level 2. Of the 4,149,200 jobs in the county in June 1997, this translates into 461,391 level 1 jobs and 942,698 level 2 jobs. Taking the ratios of recipients to jobs yields a need of 17 percent more level 1 jobs ((.8)*(97,021) ÷ 461,391) and 8 percent more level 2 jobs ((.8)*90,948) ÷ 942,698)

Appendix Table A: Definitions of Literacy Levels in the National Adult Literacy Survey		
Literacy Level	Technical Requirements	Examples
Level 1	• Extracting a single piece of information from a relatively short text or document • Entering personal information on a document • Performing specified single arithmetic operations	• Signing your name • Locating the expiration date on a driver's license • Totaling a bank deposit entry
Level 2	• Matching, integrating and contrasting information when minor distractors[1] are present • Making low-level inferences • Performing single arithmetic operations where the operation and numbers to be used are stated or easily determined	• Interpreting instructions from an appliance warranty • Locating an intersection on a street map • Calculating the total costs of a purchase from an order form
Level 3	• Locating and/or integrating information from a lengthy text or from one or more documents where irrelevant information and distracters may be present • Interpreting graphs and schedules • Performing arithmetic operations which must be determined from the terms used in the directive, and which require using numbers that must be found in the material	• Using a bus schedule to determine the appropriate bus for a given set of conditions • Using a calculator to find the difference between regular and sale price from an advertisement • Using a calculator to determine the discount from an oil bill if paid within 10 days
Level 4	• Making multiple-feature matches and integrating or synthesizing information in complex or lengthy passages • Making high-level inferences and considering conditional information • Performing tasks that require numerous responses • Performing two or more sequential mathematical operations where the operations to be used must be inferred or drawn from prior knowledge	• Determining the correct change using information in a menu • Using an eligibility pamphlet, calculating the yearly amount a couple would receive for basic supplemental security income • Explaining the difference between two different types of employee benefits
Level 5	• Searching for and/or contrasting complex information drawn from dense text • Searching through complex displays that contain multiple distracters • Making high-level, text-based inferences • Using background or specialized knowledge to interpret information or determine the features of a multiple-operation mathematical problem	• Determining shipping and totaling costs on an order form for items in a catalog • Using a calculator to determine the total cost of carpet to cover a room • Interpreting a brief phrase from a lengthy news article

[1] A distracter is a plausible but incorrect piece of information.

Source: *Adult Literacy in America.* U.S. Department of Education, Office of Educational Research and Improvement. September 1993.

Appendix Table B: The Literacy Requirements of U.S. Jobs
By Percentage of Workers in an Occupation at Levels 1, 2 and 3+

	Percentage of occupation at level:		
2-digit Census Occupation Categories	% Level 1	% Level 2	% Level 3+
Miscellaneous farming/fishing/hunting (e.g. gardeners)	38.5	24.5	37.0
Cleaning equipment handler/laborers (e.g. construction laborers)	30.6	32.3	37.1
Health services (e.g. nursing aids)	28.3	36.4	35.3
Miscellaneous assembler/operator/fabricator (e.g. textile workers)	28.1	32.9	39.0
Miscellaneous services (e.g. cooks, maids, janitors)	23.9	32.2	43.9
Fabricator/assembler/inspector (e.g. welder, painters, graders & sorters)	25.2	35.8	39.0
Transport operative (e.g. truck drivers, bus drivers)	22.0	35.0	42.9
Construction crafts (e.g. carpenters, electricians)	19.0	29.8	51.2
Miscellaneous crafts (e.g. mechanics, butchers)	14.5	28.7	56.8
Manager/operators in agriculture	14.2	34.4	51.4
Personal service occupations (e.g. hairdressers, child care workers)	13.3	32.3	54.5
Miscellaneous sales related (e.g. retail sales, cashiers)	11.1	29.5	59.4
Computer equipment operators	7.3	26.5	66.1
Public sector management (e.g. principals, public administrators)	7.2	12.3	80.5
Sales supervisors	5.9	24.2	69.9
Stenographers/typists	4.9	32.6	62.5
Misc. administrative support (e.g. bookkeepers, office and stock clerks)	4.8	23.8	71.3
Public safety (e.g. police, fire, security)	3.7	17.6	78.6
Supervisors	3.4	17.3	79.3
Science technicians	3.2	27.0	69.9
Adjustors and investigators (e.g. insurance and collection)	3.2	14.6	82.2
Miscellaneous professionals (e.g. social workers, lawyers)	2.9	10.0	87.1
Information clerks (e.g. receptionists)	2.7	27.8	69.5
Private sector management	2.6	14.1	83.3
Engineering technicians (e.g. drafting occupations)	2.5	20.1	77.5
Secretaries	2.1	19.1	78.8
Health technicians (e.g. lab technicians)	1.8	28.2	70.0
Military	1.6	15.1	83.3
Registered nurses	1.5	9.5	89.0
Misc. management (e.g. financial officers, management analysts)	1.4	10.9	87.8
Teachers (e.g. university, elementary, secondary)	1.4	8.7	89.9
Engineers	1.4	8.2	90.4
Sales representatives (e.g. commercial sales, advertising executives)	1.1	12.3	86.6
Natural scientists	0.5	3.4	96.2
Math/computer scientists	0.5	1.6	97.9
Misc. technicians (e.g. computer programmers, legal assistants)	0.4	13.2	86.4
Health diagnostics (e.g. physicians, dentists, veterinarians)	0.0	5.5	94.5
Architects/surveyors	0.0	3.6	96.4
Accountants/auditors	0.0	3.0	97.0
Miscellaneous health related (e.g. pharmacists, therapists)	0.0	2.8	97.2

Note: The columns add across to 100%. For example, 38.5% of farm jobs require level 1 literacy, 24.5% require level 2, and the other 37% require level 3 or more.

Appendix Table C: Largest City in Each County/Area

County/Area	Largest City in County/Area	City Population, 1990 Census
Jefferson, AL	Birmingham	265,196
Pima, AZ	Tucson	405,390
Maricopa, AZ	Phoenix	983,403
San Mateo, CA	Daly	92,311
Fresno, CA	Fresno	354,202
Ventura, CA	Oxnard	142,216
San Francisco, CA	San Francisco	723,959
Contra Costa, CA	Concord	111,348
Sacramento, CA	Sacramento	369,365
Riverside, CA	Riverside	226505
Alameda, CA	Fremont	173,339
San Bernardino, CA	San Bernardino	164,164
Santa Clara, CA	San Jose	782,248
Orange, CA	Anaheim	266,406
San Diego, CA	San Diego	1,110,549
Los Angeles, CA	Los Angeles	3,485,398
Duval, FL	Jacksonville	635,230
Orange, FL	Orlando	164,693
Hillsborough, FL	Tampa	280,015
Pinellas, FL	St Petersburg	238,629
Palm Beach, FL	W. Palm Beach	67,643
Broward, FL	Fort Lauderdale	149,377
Dade, FL	Miami	358,548
Fulton, GA	Atlanta	394,017
Honolulu, HI	Honolulu CDP	365,272
Du Page, IL	Naperville	85,351
Cook, IL	Chicago	2,783,726
Marion, IN	Indianapolis	731,327
Jefferson, KY	Louisville	369,063
Norfolk, MA	Quincy	84,985
Suffolk, MA	Boston	574,283
Essex, MA	Lynn	81,245
Worcester, MA	Worcester	169,759
Middlesex, MA	Lowell	103,439
Baltimore, MD	Dundalk	65,800
	Baltimore City, MD	736,014
Prince Georges, MD	Bowie	37,589
Montgomery, MD	Rockville	44,835
Macomb, MI	Warren	144,864
Oakland, MI	Southfield	75,728
Wayne, MI	Detroit	1,027,974
Hennepin, MN	Minneapolis	368,383
Jackson, MO	Kansas City	341,179
St. Louis, MO	St Louis	396,685

Appendix Table C: Largest City in Each County/Area (continued)

County/Area	Largest City in County/Area	City Population, 1990 Census
Middlesex, NJ	New Brunswick	41,711
Essex, NJ	Newark	275,221
Bergen, NJ	Hackensack	37,049
Monroe, NY	Rochester	231,636
Westchester, NY	Yonkers	188,082
Erie, NY	Buffalo	328,123
Nassau, NY	Hempstead	49,453
Suffolk, NY	Lindenhurst	26,879
New York, NY	New York	7,322,564
Hamilton, OH	Cincinnati	364,040
Franklin, OH	Columbus	632,270
Cuyahoga, OH	Cleveland	505,616
Shelby, TN	Memphis	610,337
Tarrant, TX	Arlington	261,721
Bexar, TX	San Antonio	935,933
Dallas, TX	Dallas	966,168
Harris, TX	Houston	1,603,524
Salt Lake, UT	Salt Lake City	159,936
Fairfax, VA	Fairfax	19,894
King, WA	Seattle	516,259
Milwaukee, WI	Milwaukee	628,088
	District of Columbia	606,900

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NCSALL is a collaborative effort between the Harvard Graduate School of Education and World Education. The Center for Literacy Studies at The University of Tennessee, Rutgers University, and Portland State University are NCSALL s partners. NCSALL is funded by the U.S. Department of Education through its Office of Educational Research and Improvement (OERI) and OERI s National Institute for Postsecondary Education, Libraries, and Lifelong Learning.

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For more information about NCSALL, please contact:

John Comings, Director
NCSALL
Harvard Graduate School of Education
101 Nichols House, Appian Way
Cambridge, MA 02138
(617) 495-4843
ncsall@hugse1.harvard.edu